## AMENDMENTS TO THE CLAIMS

- (currently amended) A process for producing a polymer of ethylene containing from 0.1 to 99 % by mol of one or more derived units at least one derived unit of alpha-olefins of formula CH<sub>2</sub>=CHZ, wherein Z is a C<sub>2</sub>-C<sub>20</sub> alkyl radical, and optionally from 0 to 5% by mol polyene, comprising contacting, under polymerization conditions, ethylene, one or more alpha-olefinsat least one alph-olefin and optionally said polyene, in the presence of a catalyst system obtainable obtained by contacting:
  - a) a metallocene compound of formula (I):

$$R^3$$
 $R^3$ 
 $R^3$ 
 $R^3$ 
 $R^3$ 
 $R^4$ 
 $R^3$ 
 $R^3$ 
 $R^2$ 
 $R^5$ 
 $R^5$ 
 $R^6$ 
 $X$ 
 $X$ 
 $X$ 
 $X$ 
 $X$ 
 $X$ 
 $X$ 

wherein

M is zirconium, hafnium or titanium;

X, equal to or different from each other, is a hydrogen atom, a halogen atom, [[a]]an R, OR, OR'O, OSO<sub>2</sub>CF<sub>3</sub>, OCOR, SR, NR<sub>2</sub> or PR<sub>2</sub> group, wherein R is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl, C<sub>3</sub>-C<sub>20</sub>-cycloalkyl, C<sub>6</sub>-C<sub>20</sub>-aryl, C<sub>7</sub>-C<sub>20</sub>-alkylaryl, or C<sub>7</sub>-C<sub>20</sub>-arylalkyl radical, optionally containing one or more heteroatomsat least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements; and the R' substituent is a divalent group selected from C<sub>1</sub>-C<sub>40</sub>-alkylidene, C<sub>6</sub>-C<sub>40</sub>-arylidene, C<sub>7</sub>-C<sub>40</sub>-alkylarylidene or C<sub>7</sub>-C<sub>40</sub>-arylalkylidene radicals; two X can join to form a C<sub>4</sub>-C<sub>40</sub> dienyl ligand;

R<sup>1</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl, C<sub>3</sub>-C<sub>20</sub>-cycloalkyl, C<sub>6</sub>-C<sub>20</sub>-aryl, C<sub>7</sub>-C<sub>20</sub>-alkylaryl, or C<sub>7</sub>-C<sub>20</sub>-arylalkyl radical, optionally containing one or more

heteroatoms at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

 $R^2$ ,  $R^3$ ,  $R^4$  and  $R^5$ , equal to or different from each other, are hydrogen atoms, halogen atoms or linear or branched, saturated or unsaturated  $C_1$ - $C_{20}$ -alkyl,  $C_3$ - $C_{20}$ -cycloalkyl,  $C_6$ - $C_{20}$ -aryl,  $C_7$ - $C_{20}$ -alkylaryl, or  $C_7$ - $C_{20}$ -arylalkyl radicals, optionally containing one or more heteroatoms at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

 $R^6$  is a linear or branched, saturated or unsaturated  $C_1$ - $C_{20}$ -alkyl,  $C_3$ - $C_{20}$ -cycloalkyl,  $C_6$ - $C_{20}$ -aryl,  $C_7$ - $C_{20}$ -alkylaryl, or  $C_7$ - $C_{20}$ -arylalkyl radical, optionally containing one or more heteroatoms at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements:

L is a divalent bridging group selected from  $C_1$ - $C_{20}$  alkylidene,  $C_3$ - $C_{20}$  cycloalkylidene,  $C_6$ - $C_{20}$  arylidene,  $C_7$ - $C_{20}$  alkylarylidene, or  $C_7$ - $C_{20}$  arylalkylidene radicals, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, or a silylidene radical containing up to 5 silicon atoms;

T is a divalent radical of formula (II) or (III):

wherein

the atom marked with the symbol \* is linked to the atom marked with the same symbol in the compound of formula (I);

## R<sup>3</sup>-and R<sup>4</sup>-have the meaning previously-described;

 $R^8$  is a hydrogen atom or a linear or branched, saturated or unsaturated  $C_1$ - $C_{20}$ -alkyl,  $C_3$ - $C_{20}$ -cycloalkyl,  $C_6$ - $C_{20}$ -aryl,  $C_7$ - $C_{20}$ -alkylaryl, or  $C_7$ - $C_{20}$ -arylalkyl radical, optionally

containing one or more heteroatoms at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

 $R^9$ , equal to or different from each other, is a hydrogen atom or a linear or branched, saturated or unsaturated  $C_1$ - $C_{20}$ -alkyl,  $C_3$ - $C_{20}$ -cycloalkyl,  $C_6$ - $C_{20}$ -aryl,  $C_7$ - $C_{20}$ -alkylaryl, or  $C_7$ - $C_{20}$ -arylalkyl radical, optionally containing one or more heteroatoms at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements; and b) an alumoxane or a compound eapable of formingthat forms an alkyl metallocene cation.

- 2. (original) The process according to claim 1 wherein the catalyst system further comprises an organo aluminum compound.
- 3. (currently amended) The process according to claim 1 wherein in the compound of formula (I)[[:]].
  - X is a halogen atom, [[a]]an R, OR'O or OR group, wherein R and R' are defined as in elam-1; R<sup>1</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical; R<sup>2</sup> is a hydrogen atom; R<sup>3</sup> is a hydrogen atom or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical optionally containing one or moreat least one halogen atom; R<sup>4</sup> is a hydrogen atom or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical; R<sup>6</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical; L is Si(CH<sub>3</sub>)<sub>2</sub>, SiPh<sub>2</sub>, SiPhMe, SiMe(SiMe<sub>3</sub>), CH<sub>2</sub>, (CH<sub>2</sub>)<sub>2</sub>, (CH<sub>2</sub>)<sub>3</sub>, C(CH<sub>3</sub>)<sub>2</sub>, C(Ph)<sub>2</sub> or C(CH<sub>3</sub>)(Ph); R<sup>8</sup> is hydrogen or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical; and R<sup>9</sup> is hydrogen or a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical.
- 4. (currently amended) The process according to claim 1 wherein the metallocene compound has formula (IV) or (V):

$$R^3$$
 $R^3$ 
 $R^3$ 
 $R^4$ 
 $R^3$ 
 $R^2$ 
 $R^5$ 
 $R^4$ 
 $R^3$ 
 $R^4$ 

wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>5</sup>, R<sup>6</sup>, L, M and X have the meaning reported in claim 1 or 3;

 $R^3$  is a hydrogen atom or a linear or branched, saturated or unsaturated  $C_1$ - $C_{10}$ -alkyl radical, optionally containing one or moreat least one halogen atom;  $R^4$  is a hydrogen atom or a linear or branched, saturated or unsaturated  $C_1$ - $C_{10}$ -alkyl radical.

- 5. (original) The process according to claim 4 wherein, in the compounds of formula (IV) and (V), R<sup>3</sup> is a hydrogen atom or a group -C(R<sup>7</sup>)<sub>3</sub>, wherein R<sup>7</sup>, equal to or different from each other, is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>8</sub>-alkyl radical; and R<sup>4</sup> is hydrogen or a group -C(R<sup>7</sup>)<sub>3</sub>.
- 6. (currently amended) The process according to any of claims 1 to 5claim 1 wherein, in the compounds of formulas formula (I), (IV) and (V), R<sup>3</sup> and R<sup>4</sup> are hydrogen atoms.
- 7. (currently amended) The process according to any of claims 1 to 5claim 1 wherein, in the compounds of formulas formula (I), (IV) and (V), when R³ is an hydrogen atom, R⁴ is [[or]] a linear or branched, saturated or unsaturated C₁-C₁₀-alkyl radical, optionally containing one or moreat least one halogen atom; or when R³ is a linear or branched, saturated or unsaturated C₁-C₁₀-alkyl radical optionally containing one or moreat least one halogen atom, R⁴ is an hydrogen atom.
- 8. (currently amended) The process according to any-of claims 1 to 7claim 1 wherein the catalyst system is supported on an inert carrier.

- 9. (currently amended) The process according to claim 8 wherein the eatalyst system is supported oninert carrier is a polyolefin.
- 10. (currently amended) The process according to any of claims 1 to 9claim 1 wherein the process is carried out in gas phase.
- 11. (currently amended) The process according to any of claims 1 to 11claim 1 wherein the alpha-olefin is 1-pentene, 1-hexene or 1-octene.
- 12. (new) The process according to claim 4 wherein, in the compounds of formulas (IV) and (V), R<sup>3</sup> and R<sup>4</sup> are hydrogen atoms.
- 13. (new) The process according to claim 4 wherein, in the compounds of formulas (IV) and (V), when R<sup>3</sup> is an hydrogen atom, R<sup>4</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>10</sub>-alkyl radical, optionally containing at least one halogen atom; or when R<sup>3</sup> is a linear or branched, saturated or unsaturated C<sub>1</sub>-C<sub>10</sub>-alkyl radical optionally containing at least one halogen atom, R<sup>4</sup> is an hydrogen atom.